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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/618,403

07/11/2003

Charles E. Heger

549242002300

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12/01/2004

MORRISON & FOERSTER LLP
755 PAGE MILL RD
PALO ALTO, CA 94304-1018

EXAMINER

NGUYEN, VINCENT Q

ART UNIT

PAPER NUMBER

2858

DATE MAILED: 12/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/618,403

Applicant(s)

HEGER, CHARLES E.

Examiner

Vincent Q Nguyen

Art Unit

2858

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Amendment filed 11/03/2004.
- 2a) ☒ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 and 20-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13, 15, 20-25 and 27 is/are rejected.
- 7) ☒ Claim(s) 14 and 26 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) ✓
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.

- 4) ☒ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1. Please submit the "Capacitive Sensor for Micropositioning In Two Dimensions" (Paper filed September 03, 2003) to have it considered by the examiner.

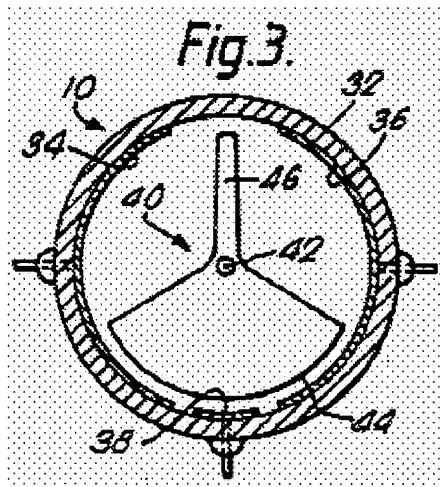
Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-8, 11-13, 21-23, 25, are rejected under 35 U.S.C. 102(b) as being anticipated by Cagan et al. (5,159,761).



Regarding claims 1, Cagan et al. discloses a device comprising (Figure 3) a body (32); a pendulum (40) suspended from the body (32); at least one capacitor (Formed by electrodes 34 and 44 or electrodes 44 and 36), wherein each capacitor has a first

electrode (34) on the body (32) and a second electrode (44) on the pendulum (40), whereby a variable capacitance between the first electrode (34) and second electrode (44) is indicative of a relative angular position between the body (32) and the pendulum, and a reference surface (The recessed upper surface between elements 34 and 36 where element 46 moves in between) associated with the body and defining a reference plan having a desired orientation.

Regarding claim 2, Cagan et al. discloses wherein the second electrode (44) of a plurality of the capacitors is a conductive surface of the pendulum (40).

Regarding claims 3, Cagan et al. discloses plurality of capacitors and, further comprising circuitry (figure 4) coupled to each of the capacitors which determines a capacitance relationship of the capacitors.

Regarding claims 4, 5, Cagan et al. discloses wherein the capacitance relationship relates a capacitance of a first of the capacitors with a capacitance of a second of the capacitors (This is true not only for prior art of Cagan et al. but also true for every prior art detecting level or angular since capacitance varies in accordance to the distance of its plates or electrodes is principle for the detection).

Regarding claims 6, 13, Cagan et al. discloses wherein the second position defines a direction orthogonal to the direction of Earth's gravitational pull (Every time the pendulum move/pivot, the second position defines a direction orthogonal to the reference surface of the liquid 28).

Regarding claims 7, 8, 12, Cagan et al. discloses circuitry coupled to the capacitor and which generates a signal indicative of a detection of tilt of the body from the pendulum (Column 2, lines 1-5).

Regarding claim 11, Cagan et al. discloses a plurality of the capacitors (Formed by electrodes 34 and 44 or electrodes 44 and 36) and further comprising circuit (Figure 4) coupled to the capacitors and which determines a relationship between capacitances of the capacitors, wherein the relationship is indicative of an angle between an axis of the body and an axis of the pendulum (40) (Capacitance between two electrodes varies according to the pivot distance between electrodes. Element 46 deflects relative to the vertical axis, indicate an angle relative to the axis).

Regarding claims 21-23, 25, Cagan discloses a method comprising the steps of (figure 3) providing a body (32) having an associated reference surface (The recessed upper surface between elements 34 and 36 where element 46 moves in between) defining the reference plane, the body having a first electrode (34); suspending a pendulum (40) from the body (32), the pendulum (40) including a second electrode (44); sensing a variable capacitance of a first capacitor including the first and the second electrodes (34, 36); and adjusting an orientation of the reference surface in response to the sensed variable capacitance, the reference plane thereby having a desired orientation (Column 5, lines 35-49).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cagan et al. (5,159,761) in view of Brihier (4,339,709).

Regarding claim 9, Cagan et al. does not disclose at least four of the capacitors.

Brihier discloses a system similar to that of Cagan et al. and further discloses (Figures 3 and 8) four capacitors (C1a-C2b) for the purpose of enhancing the accuracy of the position detector (Brihier's column 1, lines 18-28).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the four capacitors as taught by Brihier into the system of Cagan et al. because four capacitors would enhance the detection of detecting position.

6. Claims 10, 24, are rejected under 35 U.S.C. 103(a) as being unpatentable over Cagan et al. (5,159,761) in view of Roney et al. (5,280,424).

Regarding claims 10, 24, Cagan does not disclose a spring coupling the mass to a pivot of the body.

Roney et al. discloses a system and method for synthesizing the oscillatory system and further discloses a spring coupling the mass for the purpose of represent the angular displacement (Roney et al.'s column 5, lines 61-68).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the spring coupling the mass as taught by Roney et al. into the system of Cagan because it would have been desirable to represent the angular displacement of the pendulum.

7. Claims 20, 27, are rejected under 35 U.S.C. 103(a) as being unpatentable over Cagan et al. (5,159,761) in view of Piske et al. (6313,912).

Regarding claims 20, 27, Cagan et al. does not disclose external laser module detachability coupled to the reference surface.

Piske et al. discloses a leveling instrument and further discloses laser module for the purpose of providing a pendulum compensator for a laser leveling instrument and generate an actuating signal for coarse leveling (Piske et al.'s column 2, lines 40-49).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the laser module as taught by Piske et al. into the system of Cagan because the laser leveling would enhance the compensator (Piske et al.'s column 3, lines 19-24).

Allowable Subject Matter

8. Claims 14 and 26 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

9. Applicant's arguments with respect to claims 1-15, 20-27, have been considered but are moot in view of the new ground(s) of rejection.

Contact Information

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vincent Q Nguyen whose telephone number is (571) 272-2234. The examiner can normally be reached on 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, N. Le can be reached on (571) 272-2233. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Vincent Q. Nguyen
Primary Examiner
Art Unit 2858

November 28, 2004